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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/937,130 | 01/29/2002 | Taku Ishizawa | Q66313 | 8010 |

7590 06/17/2003
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EXAMINER

VO, ANH T N

ART UNIT PAPER NUMBER

2861

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/937,130

Applicant(s)
ISHIZAWA ET AL.

Examiner
Anh T. N. Vo

Art Unit
2861



— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4, and 6-56 is/are pending in the application.
- 4a) Of the above, claim(s) 14-49 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 4 is/are allowed.
- 6) ☒ Claim(s) 6-13 and 50-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 12 6) ☐ Other:

FINAL REJECTION

Response to Applicant's Amendment

The objection of the drawings was withdrawn in view of the arguments presented in the amendment.

CLAIM REJECTIONS

Claim Rejections - 35 U.S.C. § 112

Claim 50 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling, critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. For example, claim 50 recites the recording apparatus comprising only the "connectivity" but does not recite any components or limitation essential to support the performance of the recording function. See *In re Mayhem*, 527 F.d. 1229, 188 USPO 356 (CCA 1976).

Claims 6-9, 50 and 54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction or clarification is required.

In claim 6, it is unclear how the "contact face", "plane substantially parallel to the contact face" and "plane substantially perpendicular thereto" are read on the preferred embodiment. Insofar as understood, no such face and planes can be determined on the drawings.

In claim 50, it is not understood how the conductivity can "attach" an ink cartridge, to which ink cartridge can be attached, what the "ink connectivity", "pressurized air connectivity" and "electrical connectivity" are, how the ink, the pressurized air and the electrical can be connected, how the electrical connectivity can complete an electrical circuit and enable a

pressure pump, where the circuit and the pump come from, how the pressurized air can be exchanged, and where the air comes from. The description is incomplete because it fails to recite necessary components to perform the recording function.

In claim 54, it is not understood how the connection can be an electrical circuit and where the circuit comes from since it is not clearly defined.

Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 10 are rejected under 35 U.S.C. 102 (a) as being anticipated by Sato (JP. Pat. 60198256).

Sato discloses in Figures 1-4 an ink storage apparatus comprising:

- an ink pack (12) formed from flexible material and sealingly storing ink therein, and a cartridge case (11) housing the ink pack (12) and having an outer shell formed hermetically, and which is so constructed that pressurized air (16, 20) can be introduced into the case (11) in a mounted state to the recording apparatus, wherein in case that the ink cartridge (10) is mounted to the recording apparatus, after an ink outlet port (15) formed on the ink cartridge (10) is connected to the recording apparatus, a pressurized air inlet port (16) formed on the ink cartridge (10) is connected to the record apparatus.

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6-8 are rejected under 35 U.S.C. 103 (a) as being anticipated by Childers et al. (U.S. Pat. 6,130,695).

Childers et al. disclose in Figures 1-10 an ink cartridge for use in an ink jet apparatus comprising:

- an ink cartridge including (12) a circuit board (78) having data-readable storage means (26) in which ink information can be stored, and which is removably mounted to the recording

apparatus, wherein the circuit board (78) is attached to a cartridge case (12) within a box-shaped space, two surfaces (80) of which intersect at right angles and are opened (Figures 7 and 10);

- means (adhesive) for attaching the circuit board (78) is exposed toward one of the opened surfaces (Figures 7 and 10, column 7, lines 31-33); and
- a terminal mechanism (70) arranged on the recording apparatus is electrically connected to the circuit board (78) through the other of the opened surfaces (80) in a state where the cartridge (12) is mounted to the recording apparatus (Figures 9-10).

However, Childers et al does not disclose that the circuit board including a contact face which is opening openly exposed in relationship to the ink cartridge at least a plane substantially parallel to the contact face and a plane substantially perpendicular thereto. However, as shown on Figure 10 of Childers et al, an artisan would recognize that the circuit board (78) inherently has a contact face (side) or a mounting face (side) for attaching the circuit board to the ink cartridge housing. The physical size and shape of the circuit board must be accommodated with the cartridge housing. Thus, selecting the contact face of the Childers would be obvious and is considered to be a matter of a mechanical design expedient for an engineer depending upon the size and the shape of the cartridge housing in which the circuit board to be used. It would have been obvious to a person having skill in the art at the time the invention was made to remodify the contact face of Childers et al for the purpose of accommodating with a predetermined ink cartridge housing. Note that as well known in the art, there are different ways to mount the electrical circuit board to a housing. The circuit board can be removably attached to the housing using screws and permanently attached to the housing using the heat welding.

Claims 6-9, 11-13 and 50-56 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Sato (JP Pat. 60198256) in view of Mochizuki et al. (US Pat. 5,666,146) and further in view of Childers et al. (US Pat. 6,130,695) and Shinada et al (US 6,502,917).

Sato discloses in Figures 1-3 an ink storage apparatus comprising:

- an ink pack (12) formed from flexible material and sealingly storing ink therein; and a cartridge case (11) housing the ink pack (12) and formed hermetically, and which is so constructed that pressurized air (16, 20) is introduced into the case (11) in a mounted state to the recording apparatus;
- an ink outlet port (15) from the ink pack (12);
- an inlet port (16) for the pressurized air;
- the pressurized air inlet port (16) provided to the ink cartridge (10) is formed in a shape of a hollow cylindrical member formed integrally with the cartridge case (11).

However, Sato does not disclose a valve and on one surface of the cartridge case, there are provided positioning means used when the cartridge is mounted to the recording apparatus; the positioning means is constructed by an opening hole formed so as to surround a positioning pin arranged in the recording apparatus; wherein the opening hole constructing the positioning means is arranged at each of two locations along a longitudinal direction on the one surface of the case; the ink outlet port from the ink pack is arranged substantially in a center between the opening holes arranged at the two locations; on one surface of the cartridge case including a connection terminal of a circuit board having data storage means; the circuit board attaching means being constructed by a projection for heat-welding, which is formed integrally with the cartridge case; the circuit board being attached to the cartridge case such that the projection for heat welding is passed through a part of the circuit board and a top of the projection is heat-caulked; and the inlet port is set to 2- 20 mm.

Nevertheless, Mochizuki et al. disclose in Figures 1 and 4 an ink cartridge for an ink jet recording apparatus comprising:

- on one surface (4a) of the cartridge case (4), there are provided positioning means (4g, 4h) used when the cartridge (8) is mounted to the recording apparatus (Fig. 4);
- the positioning means (4g, 4h) is constructed by an opening hole formed so as to surround a positioning pin (16, 17) arranged in the recording apparatus (Fig. 4);
- wherein the opening hole constructing the positioning means (4g, 4h) is arranged at each of two locations along a longitudinal direction on the one surface (4a) of the case (4) (Figures 1 and 4);
- the ink outlet port (2) from the ink pack (1) is arranged substantially in a center between the opening holes (4g, 4h) arranged at the two locations (Figure 1).

Furthermore, Childers et al discloses in Figures 3-5 and 8 an ink cartridge for use in an ink jet apparatus comprising:

- a cartridge case (12) housing the ink pack (22);
- on one surface of the cartridge case (12) including a connection terminal (24) of a circuit board (78) having data storage means (26).

Shinada et al teaches in figure 3 an ink cartridge comprising a valve located at the ink supply port (44) for controlling the ink flow from the ink container to the printhead.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Mochizuki et al., Childers et al and Shinada into the Sato ink storage apparatus for the purpose of correctly holding an ink cartridge case at a predetermined position, providing an information storage device relating the level of deliverable ink in an ink and controlling the ink flow to the print head.

It is noted that, the recitation "the circuit board attaching means is constructed by a projection for heat-welding, which is formed integrally with the cartridge case such that the

projection for heat welding is passed through a part of the circuit board and a top of the projection is heat-caulk “ instead of adhesive means for performing the function of attaching the circuit board and the cartridge case as recited in the Childers et al. reference is a design expedient for one of ordinary skill in the art for the purpose of attaching between two elements, i.e., the circuit board and the ink cartridge case. Also the recitation “ the inlet port is set to 2- 20 mm” it is seen as a mechanical design expedient for an engineer depending upon particular environment and applications in which the Sato ink cartridge is to be used. Also, since it has been held that where the general conditions of a claim are discovered the optimum or workable range involves only routine skill in the art for the purpose of providing a fluid port communicating between the inside and outside of an ink cartridge.

Claims 50-53 are further rejected under 35 U.S.C. 103 (a) as being unpatentable over Matsui et al (US 6,062,667) in view of Nakasawa et al (US 6,281,911) and further in view of Sato (JP 60198256).

Matsui et al discloses in Figure 5 an ink cartridge comprising:

- an ink pack (13) formed flexible material for storing ink;
- a cartridge case(12);
- an ink outlet (15); and
- a connection terminal (19a, 19b) of a circuit board.

However, Matsui et al does not disclose the pair of position parts and an air outlet port.

Nevertheless, Nakasawa et al teaches in Figure 5 an ink cartridge comprising a pair of position parts (34, 35) for facilitating the smooth insertion of the needles into the ink bag to protect the ink bag from damage.

Sato teaches in Figure 4 an ink cartridge comprising an air supply port (18, 19) for receiving a pressurized air that facilitate the flow of ink from the ink bag to the printhead.

It would have been obvious to a person having skill in the art at the time the invention was made to modify the ink cartridge of Matsui et al by employing the pair of position parts taught by Nakasawa et al and an air supply port suggested by Sato for the purpose of facilitating the smooth insertion of the ink needle and the flow of the supplied ink from the ink bag. Note that, since the function of the pair of the position parts is to guide the insertion of the ink needle, so they can be rearranged to accommodate with the location of the needles and the contact terminal depending upon the physical size and shape of the holder cap. Thus, selecting the locations for the position parts would have been obvious and is considered to be a matter of a mechanical design expedient for an engineer.

Allowable Subject Matter

Claims 1 and 4 are allowed.

Response to Applicant's Arguments

The applicant argues that Childers fails to suggest a contact face being openingly exposed in relation to the ink cartridge at least on a plane substantially parallel to the contact face and a plane substantially perpendicular thereto. The arguments are not persuasive because selecting the contact face of the circuit board for the purpose of accommodating with a predetermined in cartridge housing would be obvious and is considered a matter of a mechanical design expedient for an engineer.

The applicant argues that Sato does not show that the ink port is connected prior to the pressurized air port. The argument is not persuasive because Figure 4 of Sato shows the ink needle (22) is longer than the air needle (33, 34); obviously, the ink needle (22) must be connected to the ink port (15) prior to the connections of the air needle (33, 34) and the air ports (18, 19).

CONCLUSION

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MEP. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (703) 305-8194. The examiner can normally be reached on Tuesday to Friday from 8:00 A.M. to 6:00 P.M..
The fax number of this Group 2800 is (703) 305-3431 or 305-3432.

Serial Number: 09/937,130
Art Unit: 2861

Page 11

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'Anh T.N. Vo', with a long horizontal flourish extending to the right.

ANH T.N. VO
PRIMARY EXAMINER

June 14, 2003